

NANTICOKE WATER CHEMISTRY

1978

Ministry
of the
Environment



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Environment

The Honourable
Harry C. Parrott, D.D.S.,
Minister

Graham W. S. Scott,
Deputy Minister

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Ministry of The Environment

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Summary

During 1978, water quality parameters were surveyed 9 times at 11 stations near Nanticoke in Lake Erie. The data from these surveys are presented and analyzed in this report, together with an analysis of long-term changes over the period 1969-1978. Continuing a pattern evident over the 10 year sampling period, measurements were usually homogeneous over the study area, but demonstrated significant changes through time. Phytoplankton maxima in June and later August to September were accompanied by decreases in nutrient levels. Nutrients increased once more when the phytoplankton peaks dropped off in July and October, causing reductions in uptake levels.

Long-term trend analysis was performed on seasonally adjusted data for the period 1969-1978 and showed decreases in the levels of most parameters. Exceptions were increases in total nitrogen, nitrates plus nitrites, and phytoplankton numbers. Dissolved oxygen, pH, Kjeldahl nitrogen and water level showed no significant changes over the period. Marked decreases were evident in ammonia, tending to balance the increase in nitrates and nitrites, and in dissolved phosphorus. Long-term changes were somewhat more extreme at offshore stations (numbers 112, 501, and 648) than at nearshore stations (994, 1008/1041-1042, 1016, 1040, 810 and 518).

Introduction

The 1978 season was the tenth of uninterrupted water quality monitoring in the Nanticoke area of Lake Erie. During 1978, samples were taken on 9 dates and analyzed for 21 water quality parameters. This report presents the data for 1978 with an analysis of long-term trends in the ten-year data base.

Survey Operation

Stations monitored in 1976 and 1977 were also used in 1978. In addition, three stations were added (1085, 1086, and 1087), to determine baseline concentrations to monitor future discharges from the Steel Company of Canada plant at Centre Creek; those stations were, however, omitted from the long-term trend analysis and analysis of variance. The locations of all sampling stations are shown in Figure 1. Shallow stations (518, 1040 and 1042) were sampled at mid-depth, while all others were sampled at one meter below the surface and one meter above the bottom. Temperature and dissolved oxygen were measured in situ and all other analyses were performed at the Ministry of the Environment's laboratory in Toronto.

Analysis of Data

Mean values of all parameters by station and depth appear as Table 1 of this report; the same data by date are presented as Table 2. Appendix 1 contains tabular summaries of all data showing both sampling dates and stations.

A two-way analysis of variance was performed to determine if between-date and between-station differences were significant. The results of that analysis are summarized in Table 3. In general, and as in previous years, most parameters are spatially homogeneous but vary with the season (95% significance level). With respect to spatial differences, the exceptions are surface measurements of turbidity and the sum of nitrate and nitrite, surface and bottom measurements of conductivity, and Secchi disk depth.

Deeper stations (112, 501, and 648), show lower conductivities, deeper Secchi disk depths and lower surface values of $\text{NO}_2^- + \text{NO}_3^-$; this pattern also appears in earlier years. Time variation is found in all factors except the surface and bottom measurements of BOD_5 , pH, and suspended solids; total iron in surface samples; and turbidity, total phosphorus and ammonia in bottom samples. The small overall variation in these parameters at all depths, together with the relative insulation of bottom waters, probably accounts for this apparent lack of temporal variation.

In order to compare changes in several key factors over the 10-year period, 10-year averages of the data were converted to dimensionless form by the formula:

$$Ar = \frac{(A - A_{\min})}{(A_{\max} - A_{\min})}$$

where A is the mean value of a water quality parameter at a certain month, and A_{\min} and A_{\max} are the minimum and maximum average values of the parameter throughout the year. In this way, the data are converted to values that vary between 0 and 1; Figure 2 shows the average seasonal changes over the period 1969-1978 for conductivity, total phosphorus, total nitrogen, turbidity, dissolved oxygen, and phytoplankton numbers. The phytoplankton values are highest in July and October-November. When the phytoplankton is most abundant, nutrient uptake levels are highest; peaks in phytoplankton are accompanied by very low levels in phosphorus and nitrogen, which recover as the plankton levels fall.

The long-term trend analysis (assuming a linear trend) which was performed in previous years was continued in 1978. As in 1976 and 1977, data for station 1008, which was discontinued in 1975, were replaced by the averages for stations 1041 and 1042 combined. A description of data manipulation for this analysis can be found in Polak (1978). Briefly, seasonal trends were removed from the data and the seasonally adjusted values then analyzed for long-term trends over the 10-year period.

Results of the analysis are presented in Table 4 and Figure 3. Figure 4 shows the changes in standard deviations in turbidity data which result from the removal of seasonal trends.

As more years' data are added to the long-term trend analysis, greater confidence may be attached to its results as long as the assumption of a linear trend is valid. With a base of 10 years, the 1978 analysis comprises enough data to determine general trends with accuracy. The results from the 1978 analysis closely resemble those from the previous year, suggesting that conclusions drawn then were probably accurate.

As in 1977, decreases were observed in most parameters, average reductions ranging from a fraction of 1 percent per year to over 17 percent per year. Of special interest are the marked declines in Secchi disk depth (an average annual decrease of 3.6%), total phosphorus (1.9%), dissolved (filtered reactive) phosphorus (9.3%), ammonia (17.2%), chlorophyll a (6.7%) and turbidity (4.4%). These values are for all stations pooled; offshore (further than 1 km from shore) stations show greater decreases in total phosphorus (4.6%), dissolved phosphorus (11.7%) and turbidity (11.5%). Nearshore stations (less than 1 km from shore) demonstrate consistently smaller decreases: Secchi disk depth 2.5%; total phosphorus 0.7%; dissolved phosphorus 7.5%; ammonia 14.8%; chlorophyll a 9.01%; and turbidity 2.9%.

Parameters which exhibit average annual increases are limited to total nitrogen (2.0%), the sum of nitrate plus nitrite (10.4%) and phytoplankton crop (3.9%). In this case, changes are less extreme at offshore stations for total nitrogen (1.4%) and phytoplankton crop (2.6%). Nearshore changes are greater for all three parameters: total nitrogen (2.3%), $\text{NO}_2^- + \text{NO}_3^-$ (10.5%) and phytoplankton crop (4.3%).

Certain parameters show no significant change overall. For all stations combined and for offshore stations alone, these are dissolved oxygen, pH, Kjeldahl nitrogen and water level. In nearshore samples, total phosphorus and chlorophyll a also show no significant change.

Actual annual averages for the six key parameters shown in Figure 2 are given in Table 5. These data clarify problems which arose in interpretation of the 1977 data. The decrease in conductivity which was apparent from 1969 to 1975 was countered by a small increase over 1976-1977. However, the fact that in 1978, the value is the lowest yet suggests that the 1976-1977 increase may have been a transitory one. The average annual decline in chloride is 3%, which may account for the decline in conductivity.

Both total nitrogen and phytoplankton crop show marked increases from 1977 to 1978; these changes, as well, may be related.

Conclusion

The 1978 data do not change the trends calculated over the past several years. Significant long-term increases are evident only for three parameters: total nitrogen, the sum of nitrate plus nitrite, and phytoplankton crop. Most other parameters show decreases; exceptions are dissolved oxygen, pH, Kjeldahl nitrogen and water level, which show no significant change. At nearshore stations, total phosphorus and chlorophyll a also show no change on the average.

The factors which are increasing are undoubtedly related and may have been moderated by the decrease in ammonia. Offshore, dilution of total and dissolved phosphorus is apparent. Reductions in Secchi disk depth and turbidity are evident at all stations, although they are somewhat more marked at offshore locations. (The normal expectation is that Secchi disk depth decreases with increased turbidity, phytoplankton numbers and chlorophyll. The relationship observed here between Secchi disk depth and phytoplankton abundance is therefore understandable, but the associated decreases in turbidity and chlorophyll a cannot be explained at this time).

In general, the 1978 data show spatial and temporal patterns similar to those observed at Nanticoke since 1969.

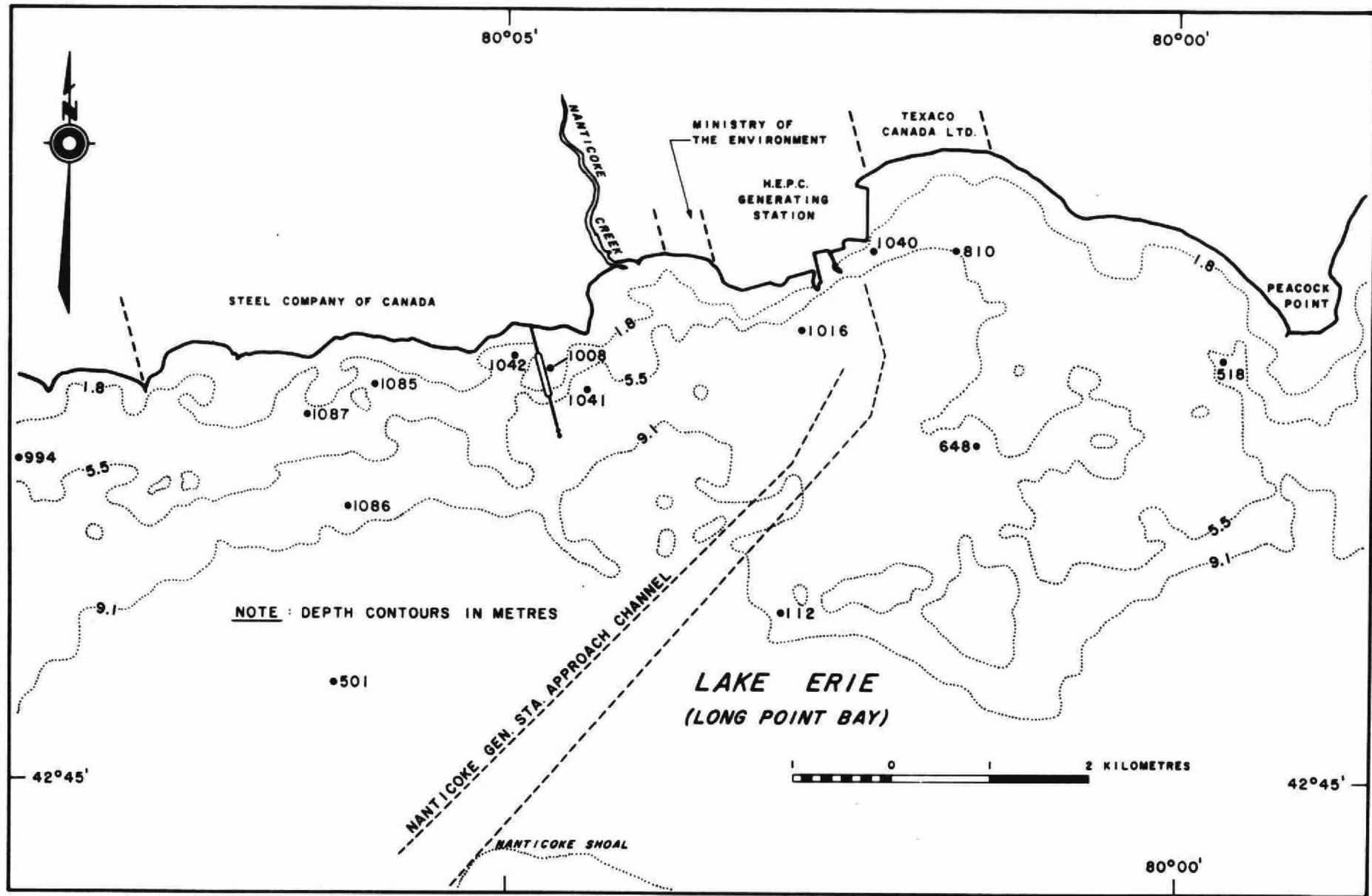


FIGURE 1 - 1978 NANTICOKE SAMPLING STATIONS.

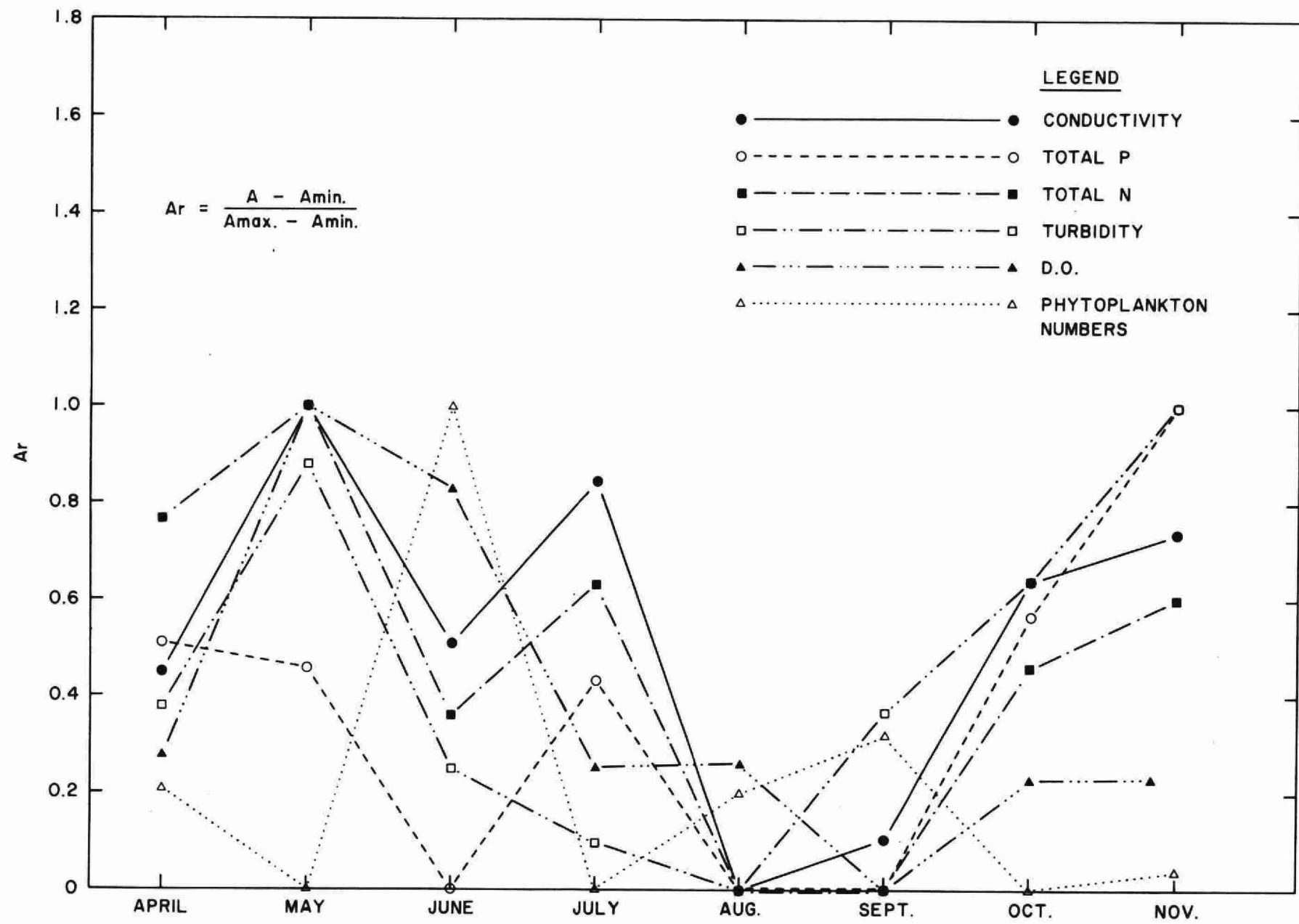


FIGURE 2 - NANTICOKE-LAKE ERIE SEASONAL VARIATION-AVERAGES, 1969-1978, ALL STATIONS.

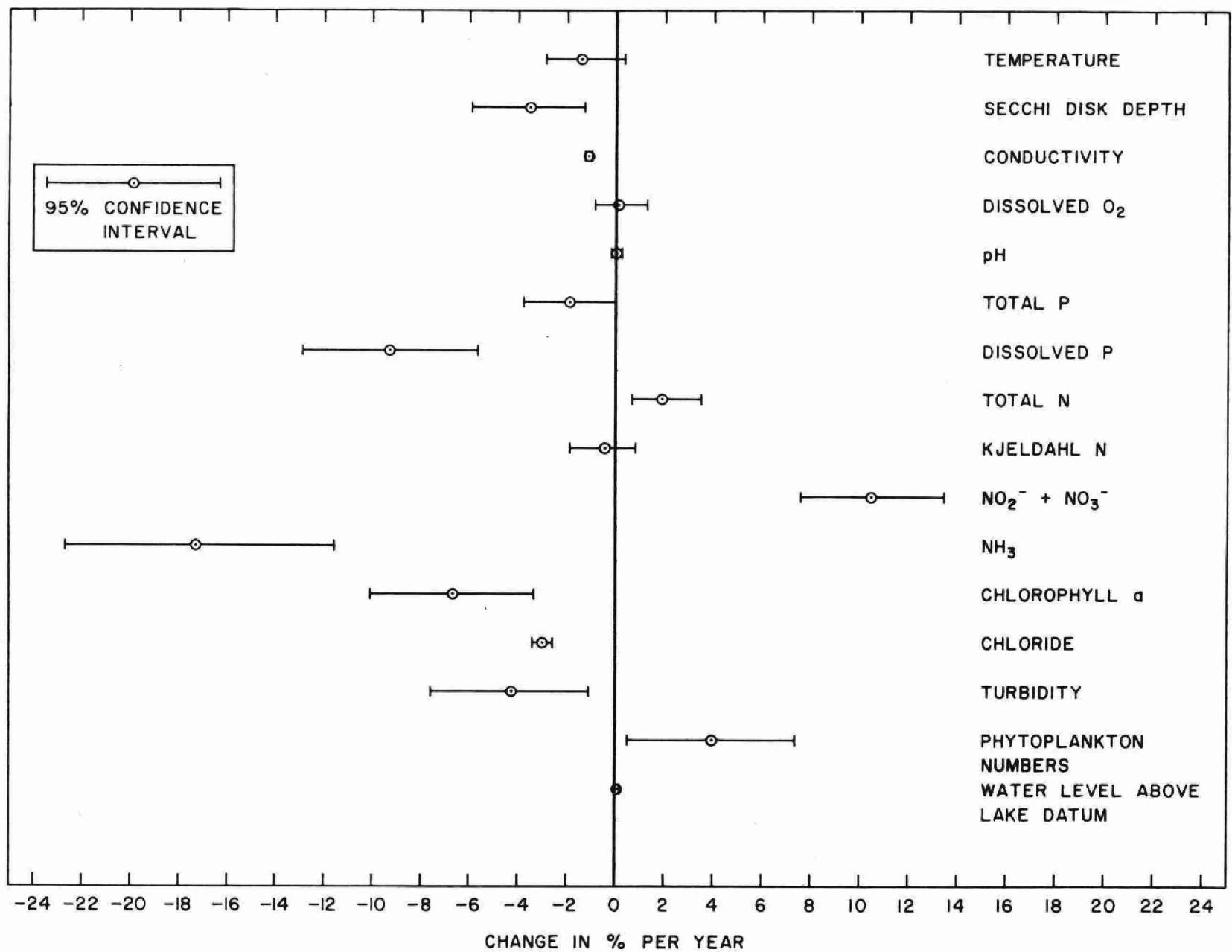


FIGURE 3 - NANTICOKE-LAKE ERIE LONG-TERM CHANGES, 1969-1978, ALL STATIONS.

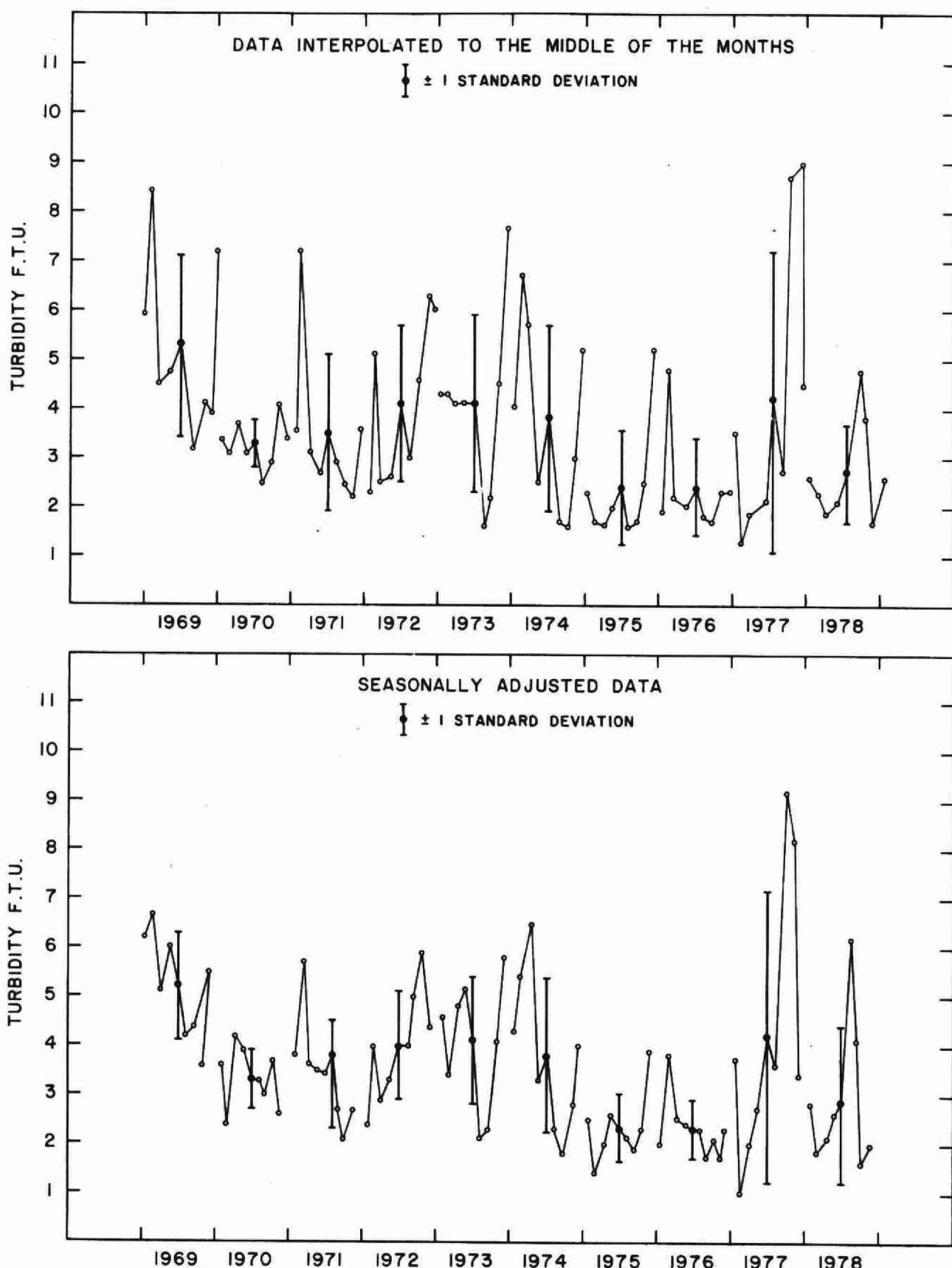


FIGURE 4 - COMPARISON OF RAW AND SEASONALLY ADJUSTED TURBIDITY, NANTICOKE 1969-1978, ALL STATIONS.

TABLE 1
Summary of Results, Mean Value per Station, 1978 - Nanticoke Water Chemistry

Station	Temp.	BOD ₅	Cond	Turb	pH	Cl ⁻	SO ₄ ²⁻	Susp Solids	Total Alk	Si	Secc disk	Diss O ₂	Diss O ₂	Total Fe	Total P	Filt Reac P	Total Kjeld N	Filt NO ₂ + NO ₃	Chlorophyll			
																			mg/L	ug/L	ug/L	
9	112 s	12.7	0.2	291.	2.0	8.1	20.5	25.7	1.7	-	0.14	3.4	11.0	98	0.04	0.012	0.004	0.33	0.152	0.012	2.0	0.4
	b	11.0	0.2	292.	2.5	8.2	20.6	25.8	3.3	-	0.16	-	10.8	91	0.05	0.013	0.003	0.27	0.171	0.011	-	-
	501 s	12.8	0.2	291.	2.0	8.2	20.4	25.8	1.0	97.7	0.14	3.7	11.0	99	0.05	0.011	0.003	0.32	0.152	0.010	2.2	0.4
	b	10.0	0.2	292.	2.2	8.1	20.3	25.7	2.0	-	0.19	-	11.0	90	0.09	0.012	0.004	0.31	0.186	0.018	-	-
	518 s	12.5	0.2	292.	2.3	8.0	20.3	26.2	2.7	-	0.14	2.3	10.9	100	0.05	0.014	0.003	0.35	0.166	0.010	2.4	0.4
	648 s	12.8	0.2	291.	1.7	8.0	20.4	25.8	1.7	-	0.16	3.3	10.9	99	0.05	0.009	0.003	0.32	0.156	0.013	2.1	0.4
	b	11.9	0.2	292.	1.9	8.2	20.5	25.7	2.0	-	0.17	-	10.9	95	0.09	0.011	0.003	0.28	0.159	0.009	-	-
	810 s	12.9	0.2	294	3.0	8.3	20.9	26.5	3.0	-	0.15	1.9	10.9	99	0.08	0.015	0.003	0.36	0.175	0.014	2.6	0.4
	b	10.9	0.2	292.	2.7	8.0	20.3	25.7	1.7	98.7	0.16	-	11.0	94	0.08	0.013	0.003	0.36	0.175	0.015	-	-
	994 s	12.1	0.3	293.	2.2	8.1	20.4	26.3	1.7	99.0	0.17	2.8	11.0	99	0.05	0.012	0.003	0.35	0.167	0.020	2.1	0.4
	b	10.5	0.2	293.	2.3	8.1	20.3	26.2	2.7	98.7	0.17	-	11.0	93	0.07	0.021	0.006	0.39	0.181	0.019	-	-
1016 s	12.1	0.2	292.	2.3	8.2	20.5	26.0	2.0	98.3	0.17	2.5	10.9	96	0.09	0.014	0.003	0.46	0.172	0.012	2.5	0.4	
b	10.7	0.2	296.	7.4	8.1	20.6	26.0	3.3	98.0	0.17	-	10.9	93	0.05	0.020	0.002	0.42	0.178	0.025	-	-	
1040 s	12.6	0.2	294.	2.9	8.2	20.4	26.5	3.7	99.0	0.19	1.7	11.0	99	0.06	0.013	0.003	0.31	0.191	0.013	2.6	0.4	
1041 s	11.9	0.2	293.	3.0	8.1	20.4	26.3	3.0	99.7	0.16	2.3	10.9	97	0.11	0.014	0.002	0.37	0.177	0.009	2.6	0.5	
b	10.6	0.2	296.	8.5	8.1	20.4	26.5	8.7	99.0	0.19	-	10.9	93	0.17	0.025	0.004	0.35	0.185	0.014	-	-	
1042 s	11.8	0.3	296.	3.3	8.2	20.7	26.5	3.3	99.3	0.20	2.1	10.9	98	0.12	0.014	0.002	0.28	0.185	0.012	2.7	0.12	

TABLE 2

Summary of Results, Mean Value by Date, 1978 - Nanticoke Water Chemistry

Date	Temp.		BOD ₅		Cond	Turb	pH	Cl ⁻	SO ₄ ²⁻	Susp Solids	Total Alk	Si	Secc disk	Diss O ₂	Diss O ₂	Total Fe	Total P	Filt Reac P	Total Kjeld N	Filt NO ₂ + NO ₃	Chlorophyll	
	oC	mg/L	us/cm	FTU																mg/L	ug/L	ug/L
Apr 25 s	5.1	0.2	297.	2.5	8.2	19.5	27.5	2.0	96.5	0.18	2.4	13.5	106.	0.09	0.011	.005	.008	0.23	0.22	0.009	2.5.	2.5
b	4.2	0.2	296.	2.6	8.1	19.5	27.2	2.4	96.1	0.17	-	13.7	105.	0.09	0.016	.008	.008	0.23	0.214	0.007	-	-
May 15 s	-	-	291.	2.3	-	19.7	-	-	-	0.13	2.3	-	-	-	0.012	.003	.003	0.32	0.158	0.005	1.6	0.3
b	-	-	291.	2.2	-	19.6	-	-	-	0.15	-	-	-	-	0.019	.006	.006	0.41	0.159	0.012	-	-
Jun 5 s	9.4	0.2	290.	1.6	8.2	20.0	25.9	2.8	-	0.09	2.7	12.4	108.	0.05	0.014	.001	.001	0.27	0.140	0.004	3.5	0.1
b	6.2	0.2	290.	2.4	8.1	20.0	25.6	5.1	-	0.11	-	12.5	101.	0.07	0.014	.002	.002	0.27	0.160	0.008	-	-
Jul 17 s	19.5	-	285.	1.8	-	20.3	-	-	-	0.18	3.4	9.5	102.	0.05	0.011	.001	.001	0.34	0.124	0.017	1.9	0.3
b	14.1	-	289.	2.3	-	20.0	-	-	-	0.19	-	9.3	90.	0.05	0.015	.003	.003	0.37	0.179	0.021	-	-
Aug 14 s	22.4	-	290.	1.5	-	21.4	-	-	-	0.10	4.9	-	-	-	0.016	.002	.002	0.62	0.098	0.015	1.3	0.5
b	20.0	-	294.	11.7	-	21.3	-	-	-	0.16	-	-	-	-	0.032	.001	.001	0.49	0.114	0.019	-	-
Sep 19 s	18.5	-	289.	3.8	-	20.3	-	-	-	0.21	1.8	-	-	-	0.015	.003	.003	0.35	0.113	0.023	2.2	0.4
b	18.1	-	288.	4.2	-	20.1	-	-	-	0.20	-	-	-	-	0.011	.002	.002	0.29	0.107	0.029	-	-
Oct 11 s	11.6	0.2	294.	1.4	8.1	21.0	25.0	2.3	97.5	0.29	2.9	8.4	77.	0.08	0.008	.002	.002	0.23	0.225	0.007	2.1	0.5
b	11.4	0.2	295.	2.0	8.1	21.1	25.0	2.6	97.9	0.31	-	8.3	76.	0.15	0.009	.003	.003	0.22	0.230	0.010	-	-
Oct 30 s	9.6	-	303.	2.2	-	21.0	-	-	-	0.17	1.9	8.3	-	-	0.010	.002	.002	0.32	0.234	0.011	3.3	0.6
b	8.8	-	301.	2.5	-	21.0	-	-	-	0.16	-	-	-	-	0.011	.003	.003	0.34	0.234	0.013	-	-
Dec 12 s	3.5	-	298.	5.0	-	21.1	-	-	-	0.09	1.1	-	-	-	0.018	.006	.006	0.41	0.216	0.023	2.9	0.5
b	3.6	-	297.	5.4	-	21.2	-	-	-	0.09	-	-	-	-	0.020	.007	.007	0.44	0.199	0.028	-	-

TABLE 3
Two-way Analysis of Variance, Nanticoke 1976

Parameter	Between Dates		Between Stations	
	F _{10,8}	Significance	F _{8,10}	Significance*
Water Temperature	s 447.82	S.D.	1.21	N.S.D.
	b 256.21	S.D.	2.47	N.S.D.
BOD mg/L	s 1.52	N.S.D.	0.53	N.S.D.
	b 1.00	N.S.D.	1.00	N.S.D.
Conductivity	s 34.71	S.D.	3.71	S.D.
	b 14.93	S.D.	4.61	S.D.
Turbidity	s 32.25	S.D.	5.48	S.D.
	b 2.06	N.S.D.	2.08	N.S.D.
pH	s 1.49	N.S.D.	0.63	N.S.D.
	b 1.63	N.S.D.	0.79	N.S.D.
Chloride mg/L	s 11.76	S.D.	0.81	N.S.D.
	b 64.44	S.D.	2.03	N.S.D.
Sulphate mg/L	s 42.13	S.D.	1.02	N.S.D.
	b 44.10	S.D.	1.89	N.S.D.
Suspended Solids	s 1.11	N.S.D.	2.09	N.S.D.
mg/L	b 1.12	N.S.D.	1.61	N.S.D.
Total Alkalinity	s 7.82	S.D.	0.90	N.S.D.
	b 4.93	S.D.	0.81	N.S.D.
Reactive Si	s 21.41	S.D.	1.83	N.S.D.
	b 12.73	S.D.	0.71	N.S.D.
Secchi Disk	- 30.72	S.D.	10.53	S.D.
Dissolved Oxygen	s 1870.29	S.D.	0.19	N.S.D.
mg/L	b 783.85	S.D.	0.38	N.S.D.
Dissolved Oxygen	s 203.36	S.D.	0.41	N.S.D.
% Saturation	b 180.87	S.D.	2.68	N.S.D.
Total P	s 5.02	S.D.	1.31	N.S.D.
	b 1.85	N.S.D.	1.53	N.S.D.
Filtered Reactive P	s 14.70	S.D.	0.72	N.S.D.
	b 3.88	S.D.	1.46	N.S.D.
Total Kjeldahl N	s 6.33	S.D.	0.98	N.S.D.
	b 4.17	S.D.	1.72	N.S.D.
Filtered NO ₂ +	s 85.22	S.D.	5.05	S.D.
NO ₃ +	b 57.00	S.D.	2.20	N.S.D.
Filtered NH ₃ as N	s 10.7	S.D.	1.30	N.S.D.
	b 2.76	N.S.D.	1.24	N.S.D.
Chlorophyll a	s 24.53	S.D.	2.86	N.S.D.
Chlorophyll b	s 17.99	S.D.	1.14	N.S.D.
Total Fe	s 1.18	N.S.D.	1.05	N.S.D.
	b 3.70	S.D.	2.57	N.S.D.

Tested at 0.05 probability. Table values of 3.35 = F 10, 8
and 3.07 = F 8, 10

Tested at 95 % confidence level S.D. means significant difference
N.S.D. means no significant difference

s... sample from 1 m below surface

b... sample collected 1 m off bottom

TABLE 4
LONG-TERM CHANGE OF THE PHYSICO-CHEMICAL PARAMETERS, NANTICOKE, 1969-1978

Parameter	Average Value			Mean			Average Change in % per year						Significance Trend*					
	All Stations	Nearshore Stations	Offshore Stations	ALL	N	0	Min			Max			ALL	N	0	ALL	N	0
							ALL	N	0	ALL	N	0						
Conductivity us/cm	309.5±1.2	309.9±1.2	308.7±1.1	-1.1	-1.1	-1.1	-1.28	-1.28	-1.25	-1.0	-1.0	-0.99	S	S	S	D	D	D
Total P mg/L	0.017±.001	0.018±0.001	0.015±.007	-1.89	-0.7	-4.6	-3.8	-2.95	-6.2	0.0	1.55	-3.0	S	S	S	D	D	D
Total N mg/L	0.405±.015	0.416±.015	0.385±.015	1.95	2.3	1.4	0.66	1.0	0.05	3.25	3.59	2.78	S	S	S	I	I	I
pH	8.22±0.05	8.21±0.05	8.24±0.05	-0.0	0.0	0.0	-0.12	-0.19	-0.25	0.20	0.2	0.2	NS	NS	NS	-	-	-
Turbidity FTU	3.56±0.34	4.12±0.46	2.51±0.21	-4.35	-2.85	-11.5	-7.6	-6.7	-14.4	-1.06	1.0	-8.66	S	S	S	D	D	D
Phytoplankton crop ASU/mL	377.3±37.1	398.8±40.7	337.3±33.9	3.9	4.29	2.6	0.5	0.7	0.85	7.35	7.8	6.1	S	S	S	I	I	I
Kjeldahl N mg N/L	0.300±0.012	0.308±0.012	0.286±0.42	-0.56	-0.38	-1.2	-1.9	-1.7	-2.7	0.8	0.95	0.2	NS	NS	S	-	-	D
Chloride mg/L	22.72±0.23	22.71±0.25	22.71±0.20	-3.0	-3.0	-3.0	-3.4	-3.45	-3.38	-2.65	-2.6	-2.7	S	S	S	D	D	D
Dissolved Oxygen	96.9±3.4	97.1±3.6	95.7±3.4	0.17	-0.1	0.38	-0.9	-1.27	-0.7	1.27	1.05	1.47	NS	NS	NS	-	-	-
Dissolved P	.005±.000	.005±.000	.005±.000	-9.3	-7.5	-11.68	-12.9	11.4	-14.9	-5.67	-3.6	-8.46	S	S	S	D	D	D
Ammonia mg N/L	.026±.004	.024±.003	.023±.003	-17.16	-14.76	-16.16	-22.7	-18.87	-20.4	-11.59	-10.6	-11.9	S	S	S	D	D	D
NO ₂ +NO ₃	.106±.010	.110±.010	.100±.010	10.4	10.5	10.4	7.57	7.67	7.3	13.2	13.36	13.5	S	S	S	I	I	I
Chlorophyll a ug/L	2.40±0.21	2.25±0.18	1.95±0.16	-6.72	0.01	-0.72	-10.12	-3.40	-4.20	-3.31	3.42	2.76	S	NS	S	D	-	D
Temperature °C	14.7±0.7	14.7±0.7	14.5±0.7	-1.42	1.21	-1.70	-2.98	-2.74	-3.36	-0.14	0.33	-0.05	S	S	S	D	D	D
Secchi disk depth m	2.87±0.17	2.22±0.15	3.96±0.27	3.58	-2.54	-3.56	-5.92	-5.20	-6.16	-1.25	0.11	-0.96	S	S	S	D	D	D
Water Level	174.3±0.0	174.3±0.0	174.3±0.0	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.02	0.02	NS	NS	NS	-	-	-

*NOTE:

S - Significant Trend

NS - No Significant Trend

I - Increase

D - Decrease

TABLE 5

ANNUAL AVERAGES FOR SIX KEY PARAMETERS

PARAMETER	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Conductivity (umhos/cm)	325.6	322.0	311.9	322.6	313.0	308.2	299.0	300.9	301.7	290.6
Total Phosphorus (mg/L)	0.020	0.019	0.016	0.014	0.017	0.021	0.015	0.013	0.019	0.014
Total Nitrogen (mg/L)	0.371	0.440	0.350	0.362	0.409	0.416	0.397	0.415	0.383	0.510
Turbidity (FTU)	5.28	3.26	3.48	4.05	4.14	3.84	2.36	2.36	4.21	2.71
Diss. Oxygen (% Saturation)	98.13	97.08	100.50	101.71	-	-	92.24	96.09	103.00	98.63
Phytoplankton crop (ASU/ml)	234.1	531.7	381.2	272.6	418.2	228.0	406.2	311.5	351.1	637.6

APPENDIX I, TABLE 1, NANTICOKE 1978

WATER TEMPERATURE DEG. C

STATION	DEPTH	APR. 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	3.1	****	10.9	19.2	22.2	18.9	12.1	10.0	5.5	12.7	6.82
112	11.0	3.0	****	5.0	14.1	20.3	18.5	12.4	9.6	5.5	11.0	6.40
501	1.0	3.0	****	11.5	20.0	22.8	18.5	12.4	8.9	5.1	12.8	7.14
501	12.0	2.5	****	5.2	11.0	18.9	18.5	11.2	8.0	5.1	10.0	6.11
518	3.0	6.8	****	10.0	19.1	22.1	18.0	12.0	9.5	2.8	12.5	6.63
648	1.0	4.5	****	11.0	18.9	22.3	18.6	12.2	10.0	5.0	12.8	6.57
648	7.0	4.1	****	8.8	16.0	20.9	18.3	12.0	9.9	5.0	11.9	6.10
810	1.0	6.1	****	8.6	19.2	24.0	19.5	12.6	10.8	2.2	12.9	7.47
810	8.0	5.1	****	7.0	14.0	20.1	17.7	12.0	9.0	2.2	10.9	6.21
994	1.0	5.5	****	10.0	20.0	22.0	18.0	10.0	8.5	3.2	12.1	6.97
994	7.0	4.9	****	6.0	15.0	20.1	17.5	9.7	8.0	3.2	10.5	6.25
1016	1.0	5.0	****	7.1	19.2	22.8	18.7	11.2	10.6	2.5	12.1	7.36
1016	9.0	4.9	****	5.5	13.9	19.6	18.5	11.5	9.0	2.5	10.7	6.34
1040	3.0	6.0	****	8.5	19.0	21.9	18.3	12.0	10.0	5.2	12.6	6.35
1041	1.0	5.0	****	8.0	20.0	22.0	18.1	11.0	9.5	2.0	11.9	7.30
1041	9.0	5.0	****	5.8	15.0	19.8	18.0	11.0	8.1	2.0	10.6	6.48
1042	2.0	5.9	****	8.0	20.0	22.1	18.1	10.5	8.2	1.3	11.8	7.44
MEAN	SURFACE	5.1	****	9.4	19.5	22.4	18.5	11.6	9.6	3.5	12.4	6.61
	BOTTOM	4.2	****	6.2	14.1	20.0	18.1	11.4	8.8	3.6	10.8	5.94
ST DEV	SURFACE	1.26	****	1.51	0.47	0.64	0.48	0.87	0.86	1.57	11.8	6.37
	BOTTOM	1.06	****	1.32	1.57	0.62	0.42	0.90	0.79	1.51	***	*****

**** = FEELS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I • TABLE 3 • NANTICOKE 1978

CONDUCTIVITY AT 25 DEG. C UMHDS/CM

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
<hr/>												
112	1.0	294.	290.	290.	285.	290.	285.	290.	300.	295.	291.	4.77
112	11.0	294.	290.	290.	290.	290.	285.	290.	300.	295.	292.	4.25
<hr/>												
501	1.0	293.	290.	290.	280.	285.	290.	290.	305.	295.	291.	6.86
501	12.0	293.	290.	290.	290.	290.	285.	295.	300.	295.	292.	4.30
<hr/>												
518	3.0	297.	290.	290.	285.	285.	285.	295.	305.	295.	292.	6.77
<hr/>												
648	1.0	295.	290.	290.	285.	285.	285.	290.	300.	295.	291.	5.27
648	7.0	295.	290.	290.	290.	290.	285.	295.	300.	295.	292.	4.41
<hr/>												
810	1.0	300.	290.	290.	285.	305.	285.	295.	300.	295.	294.	6.97
810	8.0	297.	290.	290.	285.	285.	290.	295.	305.	295.	292.	6.33
<hr/>												
994	1.0	297.	290.	290.	285.	290.	295.	295.	300.	295.	293.	4.58
994	7.0	296.	290.	290.	290.	290.	290.	295.	300.	295.	293.	3.72
<hr/>												
1016	1.0	296.	***	290.	285.	285.	290.	295.	300.	295.	292.	5.40
1016	9.0	296.	295.	290.	290.	305.	290.	295.	300.	305.	296.	6.00
<hr/>												
1040	3.0	299.	290.	290.	285.	285.	290.	300.	305.	305.	294.	8.00
<hr/>												
1041	1.0	298.	290.	290.	285.	290.	290.	295.	300.	300.	293.	5.33
1091	9.0	298.	290.	290.	290.	305.	290.	300.	300.	300.	296.	5.88
<hr/>												
1042	2.0	300.	295.	290.	285.	295.	290.	295.	310.	305.	296.	7.82
<hr/>												
MEAN	SURFACE	297.	291.	290.	285.	290.	289.	294.	303.	298.	293.	6.21
	BOTTOM	296.	291.	290.	289.	294.	288.	295.	301.	297.	293.	5.15
<hr/>												
ST.DEV	SURFACE	2.43	1.67	0.0	1.58	6.43	3.37	3.16	3.54	4.25	293.	5.78
	BOTTOM	1.72	1.89	0.0	1.89	8.02	2.67	2.89	1.89	3.93	***	****

*** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I, TABLE 4, NANTICOKE 1978

TURBIDITY (FORMAZIN UNITS)

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
	N	I									I	

112	1.0	I	1.8	1.9	0.9	1.5	1.7	3.1	0.8	2.4	3.9	I 2.0 1.00
112	11.0	I	4.5	2.1	1.3	2.0	1.6	2.5	0.9	4.4	3.5	I 2.5 1.31

501	1.0	I	1.6	1.4	1.1	0.4	0.7	3.9	0.9	2.4	5.5	I 2.0 1.69
501	12.0	I	1.8	2.6	1.3	1.8	2.3	2.5	1.4	1.8	4.4	I 2.2 0.94

518	3.0	I	2.7	2.0	1.4	2.1	1.1	3.0	1.5	2.4	4.1	I 2.3 0.93

648	1.0	I	1.7	1.8	1.0	1.4	0.8	1.7	0.8	1.8	4.6	I 1.7 1.15
648	7.0	I	1.9	1.7	1.3	1.6	1.4	2.5	1.0	1.5	4.0	I 1.9 0.90

810	1.0	I	2.7	3.0	1.4	2.1	2.6	6.1	2.5	2.5	4.0	I 3.0 1.36
810	8.0	I	2.4	3.1	1.2	2.1	1.7	5.1	1.1	2.5	4.8	I 2.7 1.44

994	1.0	I	2.5	1.9	1.5	1.5	0.9	3.5	1.0	1.4	5.3	I 2.2 1.42
994	7.0	I	1.9	1.8	1.4	2.7	1.6	1.5	1.1	1.9	6.4	I 2.3 1.62

1016	1.0	I	2.1	***	1.6	2.1	1.1	3.7	1.0	2.5	4.0	I 2.3 1.11
1016	9.0	I	2.3	2.0	4.4	1.7	42.0	1.2	1.1	2.5	9.0	I 7.4 13.22

1040	3.0	I	2.9	3.5	2.1	2.5	0.9	4.0	1.5	1.9	6.6	I 2.9 1.70

1041	1.0	I	3.4	2.2	2.3	2.4	2.7	5.5	2.1	1.8	4.4	I 3.0 1.23
1041	9.0	I	3.4	1.9	5.6	4.1	31.0	14.0	7.1	3.2	5.9	I 8.5 9.16

1042	2.0	I	3.7	3.1	2.6	1.8	2.2	3.4	1.5	3.3	7.9	I 3.3 1.89

MEAN	SURFACE	I	2.5	2.3	1.6	1.8	1.5	3.8	1.4	2.2	5.0	I 2.5 1.41
	BOTTOM	I	2.6	2.2	2.4	2.3	11.7	4.2	2.0	2.5	5.4	I 3.9 6.41

ST DEV	SURFACE	I	0.71	0.71	0.57	0.62	0.77	1.25	0.58	0.53	1.33	I 3.1 4.31
	BOTTOM	I	1.00	0.50	1.84	0.88	17.27	4.51	2.27	0.99	1.88	I *** ****

**** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I, TABLE 5, NANTICOKE 1978

PH AT LAB

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
	M											

112	1.0	8.1	***	8.2	***	***	***	8.1	***	***	8.1	0.08
112	11.0	8.1	***	8.2	***	***	***	8.3	***	***	8.2	0.07

501	1.0	8.2	***	8.4	***	***	***	8.0	***	***	8.2	0.17
501	12.0	8.0	***	8.1	***	***	***	8.1	***	***	8.1	0.05

518	3.0	8.3	***	8.3	***	***	***	7.5	***	***	8.0	0.45

648	1.0	7.6	***	8.2	***	***	***	8.3	***	***	8.0	0.38
648	7.0	8.3	***	8.1	***	***	***	8.2	***	***	8.2	0.10

810	1.0	8.3	***	8.3	***	***	***	8.3	***	***	8.3	0.03
810	8.0	7.8	***	8.3	***	***	***	8.0	***	***	8.0	0.22

994	1.0	8.2	***	8.3	***	***	***	7.9	***	***	8.1	0.17
994	7.0	8.0	***	8.2	***	***	***	8.0	***	***	8.1	0.09

1016	1.0	8.1	***	8.3	***	***	***	8.2	***	***	8.2	0.08
1016	9.0	7.8	***	8.2	***	***	***	8.3	***	***	8.1	0.22

1040	3.0	8.3	***	8.2	***	***	***	8.1	***	***	8.2	0.11

1041	1.0	8.2	***	8.1	***	***	***	8.2	***	***	8.1	0.05
1041	9.0	8.2	***	8.1	***	***	***	8.1	***	***	8.1	0.09

1042	2.0	8.3	***	8.1	***	***	***	8.3	***	***	8.2	0.08

MEAN	SURFACE	8.2	***	8.2	***	***	***	8.1	***	***	8.2	0.19
	BOTTOM	8.1	***	8.1	***	***	***	8.1	***	***	8.1	0.12

ST.DEV	SURFACE	0.21	***	0.08	***	***	***	0.24	***	***	8.1	0.17
	BOTTOM	0.17	***	0.07	***	***	***	0.10	***	***	***	***

*** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I, TABLE 6, NANTICOKE 1978

CHLORIDE MG/L

STATION	DEPTH	M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.	
112	1.0	I	19.5	20.0	20.0	20.0	21.5	20.5	21.0	21.0	21.0	20.5	0.66	
<hr/>														
112	11.0	I	19.5	20.0	20.0	20.0	21.5	20.5	21.0	21.0	21.5	20.6	0.73	
<hr/>														
501	1.0	I	20.0	19.5	20.0	20.0	21.0	20.5	21.0	21.0	21.0	20.4	0.58	
501	12.0	I	19.5	19.5	20.0	20.0	20.5	20.0	21.0	21.0	21.0	20.3	0.62	
<hr/>														
518	3.0	I	19.5	19.5	20.0	20.0	21.0	20.0	21.0	21.0	21.0	20.3	0.66	
<hr/>														
648	1.0	I	19.5	20.0	20.0	20.0	21.0	20.0	21.0	21.0	21.0	20.4	0.60	
648	7.0	I	19.5	20.0	20.0	20.0	22.0	20.0	21.0	21.0	21.0	20.5	0.79	
<hr/>														
810	1.0	I	19.5	19.5	20.0	20.0	26.0	20.0	21.0	21.0	21.5	20.9	2.02	
810	8.0	I	19.5	19.5	20.0	20.0	21.0	20.0	21.0	21.0	21.0	20.3	0.66	
<hr/>														
994	1.0	I	19.5	19.5	20.0	20.0	21.0	20.5	21.0	21.0	21.0	20.4	0.65	
994	7.0	I	19.5	19.5	20.0	20.0	21.0	20.0	21.0	21.0	21.0	20.3	0.66	
<hr/>														
1016	1.0	I	19.5	***	20.0	20.0	20.5	20.5	21.0	21.0	21.5	20.5	0.65	
1016	9.0	I	19.5	19.5	20.0	20.0	21.5	20.5	21.0	21.0	22.0	20.6	0.88	
<hr/>														
1040	3.0	I	19.5	19.5	20.0	20.0	21.0	20.0	21.0	21.0	21.5	20.4	0.74	
<hr/>														
1041	1.0	I	19.5	19.5	20.0	20.0	21.0	20.5	21.0	21.0	21.0	20.4	0.65	
1041	9.0	I	19.5	19.5	20.0	20.0	21.5	20.0	21.5	21.0	21.0	20.4	0.81	
<hr/>														
1042	2.0	I	19.5	20.0	20.0	22.5	20.5	21.0	21.0	21.0	21.0	20.7	0.87	
<hr/>														
MEAN	SURFACE	I	19.5	19.7	20.0	20.3	21.4	20.3	21.0	21.0	21.1	20.5	0.88	
	BOTTOM	I	19.5	19.6	20.0	20.0	21.3	20.1	21.1	21.0	21.2	20.4	0.71	
<hr/>														
ST DEV	SURFACE	I	0.16	0.25	0.0	0.79	1.62	0.34	0.0	0.0	0.24	20.5	0.81	
	BOTTOM	I	0.0	0.24	0.0	0.0	0.49	0.24	0.19	0.0	0.39	***	*****	

*** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX 1, TABLE 7, NANTICOKE 1978

SULPHATE MG/L

STATION	DEPTH	APP 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.	
	M												

112	1.0	1	26.5	****	26.0	****	****	24.5	****	****	1	25.7	1.04
112	11.0	1	27.0	****	25.5	****	****	25.0	****	****	1	25.8	1.04

501	1.0	1	26.5	****	26.0	****	****	25.0	****	****	1	25.8	0.76
501	12.0	1	26.5	****	25.5	****	****	25.0	****	****	1	25.7	0.76

518	3.0	1	28.0	****	25.5	****	****	25.0	****	****	1	26.2	1.61

648	1.0	1	27.0	****	25.5	****	****	25.0	****	****	1	25.8	1.04
648	7.0	1	27.0	****	25.5	****	****	24.5	****	****	1	25.7	1.26

810	1.0	1	28.5	****	26.0	****	****	25.0	****	****	1	26.5	1.80
810	8.0	1	27.5	****	25.0	****	****	24.5	****	****	1	25.7	1.61

994	1.0	1	27.0	****	27.0	****	****	25.0	****	****	1	26.3	1.15
994	7.0	1	27.0	****	26.0	****	****	25.5	****	****	1	26.2	0.76

1016	1.0	1	27.5	****	25.5	****	****	25.0	****	****	1	26.0	1.32
1016	9.0	1	27.5	****	25.5	****	****	25.0	****	****	1	26.0	1.32

1040	3.0	1	28.5	****	25.5	****	****	25.5	****	****	1	26.5	1.73

1041	1.0	1	28.0	****	26.0	****	****	25.0	****	****	1	26.3	1.53
1041	9.0	1	28.0	****	26.0	****	****	25.5	****	****	1	26.5	1.32

1042	2.0	1	28.0	****	26.5	****	****	25.0	****	****	1	26.5	1.50

MEAN	SURFACE	1	27.5	****	25.9	****	****	25.0	****	****	1	26.2	1.19
	BOTTOM	1	27.2	****	25.6	****	****	25.0	****	****	1	25.9	1.04

ST DEV	SURFACE	1	0.76	****	0.50	****	****	0.24	****	****	1	26.1	1.13
	BOTTOM	1	0.49	****	0.35	****	****	0.41	****	****	1	***	****

**** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX T, TABLE 8, NANTICOKE 1978

SUSPENDED SOLIDS MG/L

STATION	DEPTH	APP 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	1	2.0	***	2.0	***	***	1.0	***	***	1	1.7
112	11.0	1	6.0	***	3.0	***	***	1.0	***	***	1	3.3
501	1.0	1	1.0	***	1.0	***	***	1.0	***	***	1	1.0
501	12.0	1	2.0	***	2.0	***	***	2.0	***	***	1	2.0
518	3.0	1	2.0	***	2.0	***	***	4.0	***	***	1	2.7
648	1.0	1	2.0	***	2.0	***	***	1.0	***	***	1	1.7
648	7.0	1	2.0	***	2.0	***	***	2.0	***	***	1	2.0
810	1.0	1	2.0	***	3.0	***	***	4.0	***	***	1	3.0
810	8.0	1	2.0	***	3.0	***	***	0.0	***	***	1	1.7
994	1.0	1	2.0	***	2.0	***	***	1.0	***	***	1	1.7
994	7.0	1	2.0	***	3.0	***	***	3.0	***	***	1	2.7
1016	1.0	1	1.0	***	3.0	***	***	2.0	***	***	1	2.0
1016	9.0	1	1.0	***	7.0	***	***	2.0	***	***	1	3.3
1040	3.0	1	3.0	***	4.0	***	***	4.0	***	***	1	3.7
1041	1.0	1	2.0	***	4.0	***	***	3.0	***	***	1	3.0
1041	9.0	1	2.0	***	16.0	***	***	8.0	***	***	1	8.7
1042	2.0	1	3.0	***	5.0	***	***	2.0	***	***	1	3.3
MEAN	SURFACE	1	2.0	***	2.8	***	***	2.3	***	***	1	2.4
	BOTTOM	1	2.4	***	5.1	***	***	2.6	***	***	1	3.4
ST DEV	SURFACE	1	0.67	****	1.23	****	****	1.34	****	****	1	2.8
	BOTTOM	1	1.62	***	5.08	****	****	2.57	****	****	1	****

**** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I, TABLE 9, NANTICOKE 1978

TOTAL ALKALINITY AT LAB MG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
	M											
<hr/>												
112	1.0	1	950.	****	****	****	****	960.	****	****	1	****
112	11.0	1	960.	****	****	****	****	960.	****	****	1	****
<hr/>												
501	1.0	1	950.	****	****	****	****	960.	****	****	1	977.
501	12.0	1	950.	****	****	****	****	970.	****	****	1	****
<hr/>												
518	3.0	1	960.	****	****	****	****	980.	****	****	1	****
<hr/>												
648	1.0	1	960.	****	****	****	****	960.	****	****	1	****
648	7.0	1	960.	****	****	****	****	970.	****	****	1	****
<hr/>												
810	1.0	1	970.	****	****	****	****	980.	****	****	1	****
810	8.0	1	970.	****	****	****	****	980.	****	****	1	987.
<hr/>												
994	1.0	1	980.	****	****	****	****	970.	****	****	1	990.
994	7.0	1	960.	****	****	****	****	990.	****	****	1	987.
<hr/>												
1016	1.0	1	960.	****	****	****	****	980.	****	****	1	983.
1016	9.0	1	960.	****	****	****	****	980.	****	****	1	980.
<hr/>												
1040	3.0	1	970.	****	****	****	****	990.	****	****	1	990.
<hr/>												
1041	1.0	1	970.	****	****	****	****	990.	****	****	1	997.
1041	9.0	1	970.	****	****	****	****	990.	****	****	1	990.
<hr/>												
1042	2.0	1	980.	****	****	****	****	980.	****	****	1	993.
<hr/>												
MEAN	SURFACE	1	965.	****	****	****	****	975.	****	****	1	****
	BOTTOM	1	961.	****	****	****	****	979.	****	****	1	****
<hr/>												
ST DEV	SURFACE	1	10.81	****	****	****	****	11.79	****	****	1	****
	BOTTOM	1	6.92	****	****	****	****	13.46	****	****	1	****

**** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I, TABLE 10, NANTICOKE 1978

REACTIVE SILICATE AS ST MG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
	M											
<hr/>												
112	1.0	1	0.15	0.20	0.10	0.15	0.05	0.20	0.20	0.10	0.10	0.055
112	11.0	1	0.15	0.20	0.15	0.15	0.10	0.20	0.25	0.10	0.10	0.053
<hr/>												
501	1.0	1	0.15	0.15	0.10	0.10	0.05	0.20	0.25	0.20	0.10	0.063
501	12.0	1	0.15	0.15	0.20	0.20	0.25	0.20	0.35	0.10	0.10	0.078
<hr/>												
518	3.0	1	0.15	0.10	0.05	0.15	0.15	0.20	0.30	0.15	0.05	0.077
<hr/>												
648	1.0	1	0.15	0.20	0.20	0.15	0.05	0.20	0.25	0.10	0.10	0.063
648	7.0	1	0.15	0.20	0.05	0.15	0.25	0.20	0.25	0.15	0.10	0.066
<hr/>												
810	1.0	1	0.20	0.10	0.05	0.15	0.15	0.20	0.30	0.15	0.05	0.079
810	8.0	1	0.20	0.10	0.10	0.20	0.15	0.20	0.30	0.15	0.05	0.074
<hr/>												
994	1.0	1	0.20	0.10	0.05	0.20	0.10	0.25	0.30	0.25	0.10	0.087
994	7.0	1	0.15	0.15	0.05	0.15	0.15	0.15	0.35	0.25	0.10	0.087
<hr/>												
1016	1.0	1	0.20	***	0.10	0.20	0.15	0.20	0.30	0.15	0.05	0.075
1016	9.0	1	0.20	0.15	0.10	0.30	0.10	0.20	0.30	0.15	0.05	0.087
<hr/>												
1040	3.0	1	0.20	0.10	0.05	0.35	0.15	0.20	0.35	0.20	0.10	0.19
<hr/>												
1041	1.0	1	0.20	0.10	0.05	0.15	0.10	0.20	0.35	0.20	0.10	0.089
1041	9.0	1	0.20	0.10	0.15	0.20	0.15	0.25	0.35	0.20	0.10	0.078
<hr/>												
1042	2.0	1	0.20	0.10	0.15	0.25	0.10	0.25	0.30	0.25	0.20	0.071
<hr/>												
MEAN	SURFACE	1	0.18	0.13	0.09	0.18	0.10	0.21	0.29	0.17	0.09	0.076
	BOTTOM	1	0.17	0.15	0.11	0.19	0.16	0.20	0.31	0.16	0.09	0.073
<hr/>												
ST DEV	SURFACE	1	0.026	0.044	0.052	0.071	0.044	0.021	0.046	0.054	0.044	0.075
	BOTTOM	1	0.027	0.041	0.056	0.053	0.063	0.029	0.045	0.053	0.024	***
<hr/>												

*** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX 1 • TABLE 11 • NANTICOKE 1978

SECCHI DISK DEPTH M

STATION	DEPTH	APR. 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.	
112	1.0	1	3.6	3.0	3.7	3.8	6.5	2.5	4.5	2.0	1.2	3.4	1.54
112	11.0	1	***	***	***	***	***	***	***	***	***	***	***
501	1.0	1	3.9	3.0	3.5	7.0	6.8	2.2	4.2	2.0	1.0	3.7	2.05
501	12.0	1	***	***	***	***	***	***	***	***	***	***	***
518	3.0	1	1.9	2.1	2.8	3.0	4.8	1.6	1.6	2.0	0.9	2.3	1.13
648	1.0	1	3.2	3.2	3.8	4.1	5.5	2.5	4.3	2.0	1.0	3.3	1.34
648	7.0	1	***	***	***	***	***	***	***	***	***	***	***
810	1.0	1	1.9	1.7	3.0	2.3	3.2	1.0	1.6	1.5	1.2	1.9	0.76
810	8.0	1	***	***	***	***	***	***	***	***	***	***	***
994	1.0	1	1.8	2.5	2.6	3.1	5.5	1.8	4.2	2.5	1.0	2.8	1.36
994	7.0	1	***	***	***	***	***	***	***	***	***	***	***
1016	1.0	1	2.5	1.8	2.5	2.9	5.0	1.5	2.9	2.0	1.5	2.5	1.08
1016	9.0	1	***	***	***	***	***	***	***	***	***	***	***
1040	3.0	1	1.6	1.5	1.7	2.1	3.2	1.5	1.2	1.5	1.2	1.7	0.62
1041	1.0	1	1.6	2.5	1.8	2.7	4.5	1.7	2.1	2.0	1.5	2.3	0.93
1041	9.0	1	***	***	***	***	***	***	***	***	***	***	***
1042	2.0	1	1.8	1.4	1.7	2.8	4.5	1.4	2.7	1.5	1.0	2.1	1.08
MEAN	SURFACE	1	2.4	2.3	2.7	3.4	4.9	1.8	2.9	1.9	1.1	2.6	1.35
	BOTTOM	1	***	***	***	***	***	***	***	***	***	***	***
ST.DEV.	SURFACE	1	0.37	0.66	0.80	1.41	1.20	0.49	1.28	0.32	0.21	2.6	1.35
	BOTTOM	1	***	***	***	***	***	***	***	***	***	***	***

*** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I • TABLE 12 , NANTICOKE 1978

DISSOLVED OXYGEN MG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	13.7	****	12.6	9.4	****	****	8.3	****	****	11.0	2.56
112	11.0	13.9	****	12.3	9.0	****	****	8.2	****	****	10.8	2.70
501	1.0	13.6	****	12.4	9.4	****	****	8.5	****	****	11.0	2.42
501	12.0	14.0	****	12.4	9.8	****	****	8.0	****	****	11.0	2.67
518	3.0	13.4	****	12.4	9.4	****	****	8.4	****	****	10.9	2.38
648	1.0	13.6	****	12.3	9.6	****	****	8.3	****	****	10.9	2.43
648	7.0	13.8	****	12.5	9.2	****	****	8.3	****	****	10.9	2.62
810	1.0	13.4	****	12.4	9.5	****	****	8.4	****	****	10.9	2.36
810	8.0	13.6	****	12.7	9.2	****	****	8.4	****	****	11.0	2.56
994	1.0	13.2	****	12.7	9.2	****	****	8.8	****	****	11.0	2.30
994	7.0	13.5	****	13.0	9.0	****	****	8.6	****	****	11.0	2.58
1016	1.0	13.6	****	12.4	9.5	****	****	8.3	****	****	10.9	2.47
1016	9.0	13.7	****	12.5	9.3	****	****	8.3	****	****	10.9	2.56
1040	3.0	13.6	****	12.6	9.6	****	****	8.3	****	****	11.0	2.49
1041	1.0	13.4	****	12.2	9.6	****	****	8.4	****	****	10.9	2.30
1041	9.0	13.5	****	12.4	9.3	****	****	8.4	****	****	10.9	2.44
1042	2.0	13.4	****	12.2	9.6	****	****	8.6	****	****	10.9	2.23
MEAN	SURFACE	13.5	****	12.4	9.5	****	****	8.4	****	****	11.0	2.10
	BOTTOM	13.7	****	12.5	9.3	****	****	8.3	****	****	11.0	2.29
ST.DEV.	SURFACE	0.15	****	0.17	0.13	****	****	0.16	****	****	11.0	2.16
	BOTTOM	0.20	****	0.24	0.27	****	****	0.19	****	****	***	*****

**** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX T, TABLE 13, NANTICOKE 1978

DISSOLVED OXYGEN % SATURATION

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
<hr/>												
112	1.0	102.	***	113.	101.	***	***	77.	***	***	98.	15.17
112	11.0	103.	***	96.	87.	***	***	76.	***	***	91.	11.68
<hr/>												
501	1.0	101.	***	113.	103.	***	***	79.	***	***	99.	14.33
501	12.0	102.	***	97.	88.	***	***	73.	***	***	90.	12.73
<hr/>												
518	3.0	110.	***	109.	101.	***	***	78.	***	***	100.	14.89
<hr/>												
648	1.0	105.	***	111.	102.	***	***	77.	***	***	99.	14.97
648	7.0	105.	***	107.	92.	***	***	77.	***	***	95.	13.87
<hr/>												
810	1.0	108.	***	106.	102.	***	***	79.	***	***	99.	13.40
810	8.0	106.	***	104.	89.	***	***	78.	***	***	94.	13.23
<hr/>												
994	1.0	104.	***	112.	100.	***	***	78.	***	***	99.	14.55
994	7.0	105.	***	104.	89.	***	***	75.	***	***	93.	14.20
<hr/>												
1016	1.0	106.	***	102.	102.	***	***	75.	***	***	96.	14.29
1016	9.0	107.	***	99.	90.	***	***	76.	***	***	93.	13.29
<hr/>												
1040	3.0	109.	***	107.	103.	***	***	77.	***	***	99.	14.88
<hr/>												
1041	1.0	105.	***	103.	105.	***	***	76.	***	***	97.	14.20
1041	9.0	105.	***	99.	92.	***	***	76.	***	***	93.	12.52
<hr/>												
1042	2.0	107.	***	103.	105.	***	***	77.	***	***	98.	14.09
<hr/>												
MEAN	SURFACE	106.	***	108.	102.	***	***	77.	***	***	98.	12.74
	BOTTOM	105.	***	101.	90.	***	***	76.	***	***	93.	11.69
<hr/>												
ST DEV	SURFACE	2.91	***	4.31	1.65	***	***	1.25	***	***	96.	12.54
	BOTTOM	1.70	***	4.14	1.90	***	***	1.57	***	***	***	***

*** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I, TABLE 14, NANTICOKE 1978

TOTAL PHOSPHORUS MG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	0.013	0.013	0.008	0.010	0.015	0.011	0.009	0.008	0.018	0.012	0.0034
112	11.0	0.013	0.013	0.017	0.013	0.009	0.007	0.010	0.010	0.023	0.013	0.0048
501	1.0	0.011	0.011	0.010	0.010	0.009	0.023	0.006	0.008	0.014	0.011	0.0049
501	12.0	0.010	0.013	0.007	0.014	0.019	0.006	0.008	0.009	0.019	0.012	0.0049
518	3.0	0.016	0.010	0.014	0.015	0.033	0.013	0.009	0.008	0.013	0.014	0.0076
648	1.0	0.009	0.013	0.010	0.007	0.009	0.009	0.007	0.006	0.015	0.009	0.0029
648	7.0	0.015	0.010	0.011	0.013	0.009	0.006	0.006	0.004	0.023	0.011	0.0058
810	1.0	0.009	0.011	0.015	0.014	0.025	0.020	0.011	0.011	0.015	0.015	0.0051
810	8.0	0.016	0.016	0.012	0.015	0.012	0.013	0.009	0.010	0.014	0.013	0.0025
994	1.0	0.012	0.010	0.013	0.014	0.013	0.016	0.009	0.008	0.017	0.012	0.0030
994	7.0	0.023	0.063	0.019	0.021	0.011	0.011	0.010	0.006	0.023	0.021	0.0170
1016	1.0	0.012	0.012	0.016	0.009	0.008	0.018	0.007	0.012	0.035	0.014	0.0085
1016	9.0	0.009	0.013	0.015	0.012	0.066	0.017	0.011	0.020	0.021	0.020	0.0176
1040	3.0	0.014	0.011	0.015	0.016	0.010	0.013	0.013	0.012	0.013	0.013	0.0019
1041	1.0	0.014	0.016	0.018	0.007	0.025	0.012	0.007	0.012	0.015	0.014	0.0056
1041	9.0	0.023	0.008	0.019	0.016	0.100	0.018	0.008	0.016	0.020	0.025	0.0285
1042	2.0	0.010	0.014	0.017	0.012	0.016	0.017	0.007	0.012	0.023	0.014	0.0047
MEAN	SURFACE	0.011	0.012	0.014	0.011	0.016	0.015	0.008	0.010	0.018	0.013	0.0051
	BOTTOM	0.016	0.019	0.014	0.015	0.032	0.011	0.009	0.011	0.020	0.016	0.0149
ST.DEV.	SURFACE	0.0019	0.0019	0.0033	0.0033	0.0086	0.0044	0.0022	0.0023	0.0067	0.014	0.0104
	BOTTOM	0.0057	0.0194	0.0045	0.0030	0.0362	0.0051	0.0017	0.0056	0.0033	****	*****

**** MEANS THAT THE RESULT IS NOT AVAILABLE

*** MEANS THAT THE RESULT IS NOT AVAILABLE

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	DEC 12	MEAN	ST.DEV.
FILTED REACTIVE PHOSPHORUS mg/l											
518	3.0	1.0	0.005	0.002	0.001	0.002	0.001	0.001	0.002	1.0	0.003
648	1.0	1.0	0.003	0.002	0.001	0.002	0.001	0.001	0.002	1.0	0.003
648	7.0	1.0	0.004	0.002	0.002	0.003	0.002	0.002	0.002	7.0	0.007
501	1.0	1.0	0.006	0.004	0.004	0.004	0.004	0.004	0.007	1.0	0.004
501	12.0	12.0	0.005	0.001	0.001	0.001	0.001	0.001	0.002	12.0	0.0025
112	1.0	1.0	0.007	0.003	0.003	0.001	0.001	0.002	0.007	1.0	0.004
112	112	112	0.007	0.003	0.003	0.001	0.001	0.002	0.007	112	0.0025
501	1.0	1.0	0.003	0.001	0.001	0.001	0.001	0.001	0.007	1.0	0.003
501	1.0	1.0	0.003	0.001	0.001	0.001	0.001	0.001	0.007	1.0	0.003
810	1.0	1.0	0.003	0.002	0.002	0.002	0.002	0.001	0.002	1.0	0.0022
810	8.0	8.0	1.0	0.005	0.005	0.004	0.004	0.004	0.005	8.0	0.0018
994	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	994	0.0016
994	9.0	9.0	1.0	0.004	0.004	0.004	0.004	0.004	0.004	9.0	0.0016
1016	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1016	0.0018
1016	1016	1016	1.0	0.004	0.004	0.004	0.004	0.004	0.004	1016	0.0018
1040	3.0	1.0	0.004	0.002	0.002	0.001	0.001	0.001	0.002	3.0	0.0024
1042	2.0	2.0	1.0	0.004	0.004	0.004	0.004	0.004	0.004	2.0	0.0049
1091	1.0	1.0	0.005	0.005	0.005	0.005	0.005	0.005	0.005	1.0	0.0018
1091	1091	1091	1.0	0.005	0.005	0.005	0.005	0.005	0.005	1091	0.0016
1094	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0017
1094	1094	1094	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1094	0.0017
1096	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0016
1096	1096	1096	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1096	0.0016
1097	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1097	1097	1097	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1097	0.0018
1098	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1098	1098	1098	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1098	0.0018
1099	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1099	1099	1099	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1099	0.0018
1100	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1100	1100	1100	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1100	0.0018
1101	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1101	1101	1101	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1101	0.0018
1102	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1102	1102	1102	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1102	0.0018
1103	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1103	1103	1103	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1103	0.0018
1104	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1104	1104	1104	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1104	0.0018
1105	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1105	1105	1105	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1105	0.0018
1106	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1106	1106	1106	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1106	0.0018
1107	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1107	1107	1107	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1107	0.0018
1108	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1108	1108	1108	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1108	0.0018
1109	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1109	1109	1109	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1109	0.0018
1110	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1110	1110	1110	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1110	0.0018
1111	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1111	1111	1111	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1111	0.0018
1112	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1112	1112	1112	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1112	0.0018
1113	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1113	1113	1113	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1113	0.0018
1114	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1114	1114	1114	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1114	0.0018
1115	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1115	1115	1115	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1115	0.0018
1116	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1116	1116	1116	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1116	0.0018
1117	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1117	1117	1117	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1117	0.0018
1118	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1118	1118	1118	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1118	0.0018
1119	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1119	1119	1119	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1119	0.0018
1120	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1120	1120	1120	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1120	0.0018
1121	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1121	1121	1121	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1121	0.0018
1122	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1122	1122	1122	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1122	0.0018
1123	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1123	1123	1123	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1123	0.0018
1124	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1124	1124	1124	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1124	0.0018
1125	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1125	1125	1125	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1125	0.0018
1126	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1126	1126	1126	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1126	0.0018
1127	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1127	1127	1127	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1127	0.0018
1128	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1128	1128	1128	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1128	0.0018
1129	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1129	1129	1129	1.0	0.003	0.003	0.003	0.003	0.003	0.003	1129	0.0018
1130	1.0	1.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.0	0.0018
1130	1130	1130									

APPENDIX 1, TABLE 16, NANTICOKE 1978

TOTAL KJELDAHL NITROGEN MG/L

STATION	DEPTH		APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
	M	I										I	I

112	1.0	I	0.21	0.34	0.22	0.39	0.53	0.44	0.22	0.30	0.33	I 0.33	0.109 I
112	11.0	I	0.21	0.29	0.25	0.35	0.28	0.27	0.24	0.27	0.29	I 0.27	0.039 I

501	1.0	I	0.21	0.27	0.28	0.33	0.77	0.27	0.22	0.27	0.26	I 0.32	0.172 I
501	12.0	I	0.24	0.51	0.27	0.30	0.43	0.25	0.20	0.27	0.29	I 0.31	0.099 I

518	3.0	I	0.25	0.29	0.26	0.37	0.95	0.27	0.19	0.28	0.27	I 0.35	0.231 I

648	1.0	I	0.26	0.28	0.26	0.30	0.81	0.28	0.22	0.23	0.25	I 0.32	0.185 I
648	7.0	I	0.25	0.25	0.24	0.42	0.47	0.24	0.20	0.21	0.27	I 0.28	0.095 I

810	1.0	I	0.21	0.33	0.26	0.37	0.78	0.42	0.28	0.30	0.32	I 0.36	0.168 I
810	8.0	I	0.22	0.42	0.24	0.33	0.52	0.28	0.24	0.32	0.65	I 0.36	0.146 I

994	1.0	I	0.26	0.27	0.35	0.36	0.71	0.41	0.22	0.32	0.25	I 0.35	0.148 I
994	7.0	I	0.24	0.92	0.35	0.35	0.53	0.35	0.22	0.27	0.27	I 0.39	0.220 I

1016	1.0	I	0.22	0.29	0.26	0.38	0.37	0.45	0.24	0.52	1.44	I 0.46	0.380 I
1016	9.0	I	0.23	0.24	0.26	0.35	0.62	0.36	0.25	0.68	0.75	I 0.42	0.209 I

1040	3.0	I	0.23	0.32	0.27	0.33	0.37	0.33	0.24	0.37	0.33	I 0.31	0.052 I

1041	1.0	I	0.23	0.58	0.28	0.35	0.58	0.34	0.26	0.31	0.39	I 0.37	0.129 I
1041	9.0	I	0.22	0.26	0.25	0.46	0.58	0.26	0.21	0.35	0.55	I 0.35	0.145 I

1042	2.0	I	0.24	0.25	0.28	0.27	0.34	0.32	0.20	0.30	0.31	I 0.28	0.044 I

MEAN	SURFACE	I	0.23	0.32	0.27	0.34	0.62	0.35	0.23	0.32	0.41	I 0.35	0.182 I
	BOTTOM	I	0.23	0.41	0.27	0.37	0.49	0.29	0.22	0.34	0.44	I 0.34	0.150 I

ST.DEV	SURFACE	I	0.020	0.095	0.033	0.038	0.215	0.071	0.027	0.079	0.363	I 0.34	0.169 I
	BOTTOM	I	0.014	0.245	0.039	0.055	0.112	0.048	0.021	0.157	0.206	I ***	*** I

*** MEANS THAT THE RESULT IS NOT AVAILABLE

ETLTEFED NO2 AND NO3 M6/1

APPENDIX I. TABLE 17. NANTICKE 1978

APPENDIX I, TABLE 1B, NANTICOKE 1978

THE DECODED AMMONIA M6/1

JUL 17 AUG 14 SEP 19 OCT 11

0.018 0.016 0.014 0.012 0.010

0.026 0.046 0.014 0.008

900°0 910°0 0°038 0°010

19.4 820.0 800.0 910.0

0.034 0.006 0.020 0.010

910°0 860°0 910°0 220°0

900°0 0.018 0.008 0.010 0.010 0.010

800:0 120:0 300:0 900:0

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APPENDIX 1, TABLE 19, NANTICOKE 1978

CHLOROPHYLL A UG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.	
112	1.0	1	1.7	1.6	2.5	1.7	1.6	1.7	2.1	2.7	2.3	2.0	0.42
112	11.0	1	***	***	***	***	***	***	***	***	***	***	****
501	1.0	1	3.3	1.9	2.2	1.6	1.6	1.9	2.1	3.0	1.9	2.2	0.60
501	12.0	1	***	***	***	***	***	***	***	***	***	***	****
518	3.0	1	2.5	1.7	3.2	1.9	1.2	2.1	2.3	3.9	2.6	2.4	0.81
648	1.0	1	2.9	1.3	2.4	1.5	1.3	2.0	1.9	3.1	2.2	2.1	0.65
648	7.0	1	***	***	***	***	***	***	***	***	***	***	****
810	1.0	1	2.9	1.6	3.3	2.2	1.2	2.4	2.2	4.1	3.3	2.6	0.91
810	8.0	1	***	***	***	***	***	***	***	***	***	***	****
994	1.0	1	2.1	1.3	2.9	1.7	1.7	2.2	1.9	2.7	2.5	2.1	0.52
994	7.0	1	***	***	***	***	***	***	***	***	***	***	****
1016	1.0	1	2.2	1.6	4.0	2.1	1.3	2.5	1.9	3.4	3.2	2.5	0.89
1016	9.0	1	***	***	***	***	***	***	***	***	***	***	****
1040	3.0	1	2.1	1.6	4.2	2.1	1.2	2.5	2.5	3.6	3.9	2.6	1.04
1041	1.0	1	2.5	2.2	4.8	2.0	1.2	2.3	1.9	3.2	3.3	2.6	1.05
1041	9.0	1	***	***	***	***	***	***	***	***	***	***	****
1042	2.0	1	2.8	1.0	5.3	2.6	1.1	2.3	2.0	3.5	3.9	2.7	1.37
MEAN	SURFACE	1	2.5	1.6	3.5	1.9	1.3	2.2	2.1	3.3	2.9	2.4	0.86
	BOTTOM	1	***	***	***	***	***	***	***	***	***	***	****
ST DEV	SURFACE	1	0.48	0.33	1.06	0.33	0.21	0.26	0.20	0.47	0.71	2.4	0.86
	BOTTOM	1	***	***	***	***	***	***	***	***	***	***	****

*** MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX 1, TABLE 20, NANTICOKE 1978

CHLOROPHYLL B UG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	1	0.3	0.3	0.1	0.4	0.5	0.3	0.4	0.5	0.4	0.12
112	11.0	1	****	****	****	****	****	****	****	****	1	****
501	1.0	1	0.5	0.3	0.1	0.4	0.6	0.4	0.5	0.6	0.4	0.16
501	12.0	1	****	****	****	****	****	****	****	****	1	****
518	3.0	1	0.4	0.2	0.1	0.3	0.5	0.5	0.5	0.9	0.3	0.23
648	1.0	1	0.6	0.3	0.1	0.4	0.6	0.4	0.5	0.4	0.4	0.16
648	7.0	1	****	****	****	****	****	****	****	****	1	****
810	1.0	1	0.4	0.2	0.1	0.3	0.5	0.5	0.5	0.6	0.4	0.18
810	8.0	1	****	****	****	****	****	****	****	****	1	****
994	1.0	1	0.3	0.3	0.1	0.3	0.6	0.3	0.6	0.4	0.4	0.16
994	7.0	1	****	****	****	****	****	****	****	****	1	****
1016	1.0	1	0.4	0.3	0.1	0.4	0.5	0.5	0.4	0.8	0.4	0.19
1016	9.0	1	****	****	****	****	****	****	****	****	1	****
1040	3.0	1	0.4	0.2	0.1	0.3	0.4	0.2	0.4	0.7	0.6	0.19
1041	1.0	1	0.4	0.8	0.1	0.3	0.6	0.5	0.4	0.6	0.5	0.20
1041	9.0	1	****	****	****	****	****	****	****	****	1	****
1042	2.0	1	0.4	0.3	0.1	0.2	0.5	0.4	0.4	0.4	0.3	0.12
1-EAN	SURFACE	1	0.4	0.3	0.1	0.3	0.5	0.4	0.5	0.6	0.5	0.17
	BOTTOM	1	****	****	****	****	****	****	****	****	1	****
1	ST DEV	SURFACE	1	0.09	0.18	0.0	0.07	0.07	0.11	0.07	0.17	0.10
1		BOTTOM	1	****	****	****	****	****	****	****	1	****

**** MEANS THAT THE RESULT IS NOT AVAILABLE

TOTAL IRON MG/L

SUMMARY OF PHYTOPLANKTON DATA AT THIRTEEN SAMPLING STATIONS IN THE NANTICOKE AREA, 1978. ALL RESULTS ARE EXPRESSED AS AREAL STANDARD UNITS PER ML.

TABLE 22

Station	April 25	May 15	June 5	June 27	July 17	Aug. 14	Aug. 30	Sept. 19	Oct. 11	Oct. 30	Dec. 12	MEAN
112	235	492	642	258	375	560	1390	505	414	500	161	503
501	276	562	1273	450	427	315	1093	481	792	541	298	592
518	277	407	869	542	455	326	916	587	679	437	241	521
648	270	688	627	128	345	586	1719	558	546	431	327	566
810	251	345	1195	371	700	646	1441	435	933	618	684	693
994	323	373	974	471	821	768	842	742	899	657	309	653
1016	416	427	1506	566	571	497	1219	783	524	710	391	692
1040	328	292	1829	595	704	834	964	832	907	826	262	761
1041	333	379	1336	381	502	589	1468	397	435	412	287	593
1042	386	587	1857	388	588	677	882	167	446	799	463	658
1085	371	888	1275	513	1046	379	1066	662	1084	877	533	790
1086	489	399	1852	403	375	602	930	167	693	334	536	616
1087	385	350	1274	261	494	445	1377	455	510	441	503	590
MEAN	334	476	1270	410	569	556	1177	521	652	583	384	

(Data provided by G. Hopkins, Limnology and Toxicity Section, M.O.E.)

APPENDIX 1

TABLE 23 - ADDITIONAL PARAMETERS, NANTICOKE, 1978

	APRIL 25	MAY 15	JUNE 5	JULY 17	AUGUST 14	SEPT. 19	OCT. 11	OCT. 30	DEC. 12
<u>TOTAL CHROMIUM</u>									
Station 112 to 1042	0.04	-	0.02	0.02	-	-	0.02	-	-
1085 to 1087	0.06	-	0.02	0.02	-	-	0.02	-	-
<u>TOTAL COBALT</u>									
Station 112 to 1087	0.06	-	0.02	0.02	-	-	0.02	-	-
<u>TOTAL COPPER</u>									
Station 112 to 1042	0.06	-	0.02	0.02	-	-	0.02	-	-
Station 1085 1.5m	0.02	-	0.01	0.01	-	-	0.01	-	-
Station 1086 1.0m	0.03	-	0.01	0.01	-	-	0.01	-	-
Station 1087 6.0	0.02	-	0.01	0.01	-	-	0.01	-	-
<u>TOTAL LEAD</u>									
Station 112 to 1087	0.05	-	0.03	0.03	-	-	0.03	-	-
<u>TOTAL NICKEL</u>									
Station 112 to 1087	0.004	-	0.002	0.002	-	-	0.002	-	-
<u>TOTAL ZINC</u>									
Station 112 to 1087	0.01	-	0.01	0.01	-	-	0.01	-	-

NOTE: Values are identical at all depths and stations in ranges shown.

Phenols were sampled in every year but 1976, but results always show 1.0 ug/L, the detection limit.

Cyanide was sampled on a single cruise in 1973; it will be included in 1979 and future analyses.



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Date Due

NLR 176			